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ABSTRACT

Presented in these teacher's guides for grades K-1 are lesson plans and ideas for integrating mathematics and environmental education. Each lesson originates with a fundamental concept pertaining to the environment and states, in addition, its discipline area, subject area, and problem orientation. Following this, behavioral objectives and suggested learning experiences are outlined. Behavioral objectives include cognitive and affective objectives and skills to be learned, while learning experiences list student-centered in-class activities and outside resource and community activities. Space is provided for teachers to note resource and reference materials--publications, audio-visual aids, and community resources. The guides are supplementary in nature and the lessons or episodes are designed to be placed in existing course content at appropriate times. This work was prepared under an ESEA Title III contract for Project I-C-E (Instruction-Curriculum-Environment). (BL)

ED 079155

Project I - C - E INSTRUCTION - CURRICULUM - ENVIRONMENT

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# A SUPPLEMENTARY PROGRAM FOR ENVIRONMENTAL EDUCATION

DISCIPLINE AREA Mathematics GRADE K

Produced under Title III E.S.E.A.
PROJECT I-C-E
Serving Schools in CESA's 3-8-9
1927 Main Street
Green Bay, Wisconsin 54301
(414) 432-4338
(after Dec. 1, 1972 - 468-7464)

Robert Warpinski,
Robert Kellner, Ass
George Howlett, EE

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INSTRUCTION - CURRICULUM - ENVIRONMENT

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ENVIRONMENTAL EDUCATION

s _____ GRADE K

S.E.A.

-8-9

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464)

Robert Warpinski, Director
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## PREFACE

"Oikus" for house is the Greek origin of the term "ecolog
studies our house--whatever or wherever it may be. Like an
expand or contract to fit many ranges--natural and man-made
environments, our many "houses" if we omit rancor and cite
complexities. Our "oikus" uses the insights of all subject
multidisciplinary program like ours necessarily results. A
a long time, our program ranges K thru 12. The environment
values. These values have their origin in the "oikus" of o
minds. Let us become masters of our house by replacing the
with "Know thyself and thine house."

1. Written and designed by your fellow teachers, this guide
   to fit appropriately into existing, logical course conte
2. Each page or episode offers suggestions. Knowing your s
   to adapt or adopt. Limitless chances are here for your
   Many episodes are self contained, some open-minded, stil
   developed over a few days.
3. Try these episodes, but please pre-plan. Why? Simply,
   and no curriculum will work unless viewed in the context
4. React to this guide with scratch ideas and notes on the
5. After using an episode, fill out the attached evaluation
   duplicate, or request more of these forms. Send them si
   We sincerely want your reactions or suggestions--negativ
   evaluations are the key in telling us "what works" and i
   the guides.

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## TERMS AND ABBREVIATIONS

ICE RMC is Project ICE Resource Materials Center serving
school districts in CESA 3, 8, and 9. Check the Project IC
resources. Our address and phone number is on this guide's
or call us for any materials or help.

BAVI is Bureau of Audio Visual Instruction, 1327 Universi
Madison, Wisconsin 53701 (Phone: 608-262-1644).

Cognitive means a measurable mental skill, ability, or pr

Affective refers to student attitudes, values, and feelin

## PREFACE

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--whatever or wherever it may be. Like an umbrella, our house can
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many "houses" if we omit rancor and cite long range gains, costs, and
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guide with scratch ideas and notes on the episode pages.
episode, fill out the attached evaluation form in the back. Use,
request more of these forms. Send them singly or collectively to us.
ant your reactions or suggestions--negative and positive. Your
e the key in telling us "what works" and in aiding our revisions of

## TIATIONS

ect ICE Resource Materials Center serving all public and non-public
in CESA 3, 8, and 9. Check the Project ICE Bibliography of available
ddress and phone number is on this guide's cover. Feel free to write
y materials or help.
of Audio Visual Instruction, 1327 University Avenue, P. O. Box 2093,
n 53701 (Phone: 608-262-1644).
a measurable mental skill, ability, or process based on factual data.
s to student attitudes, values, and feelings.

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ESEA Title III - 59-70-0135-2 Project I-C-E

CONCEPT NO. 1 Energy from the sun, the basic source of all energy is converted through plant photosynthesis into a form all living things can use for life process.

Discipline Area Mathema

Subject Measure

Problem Orientation Sha

| BEHAVICRAL OBJECTIVES | SUGGESTED LEARNING EX | II. |
|---|---|---|
| Cognitive: The children will compare their shadows deciding which is shorter or longer.<br>Affective: The child will become curious about other shadows created by the sun.<br><br>Skills to be Learned<br>Measurement. Observations. Visual discrimination in comparing shadows on opaque projector Ability to use simple graphs. | I. Student-centered in class activity<br>A. Observe and discuss shadows. Sample question: What causes shadows? Use an electric light, a candle, a slide projector, flashlight as well as the sun to develop them.<br>B. Measure shadows in the morning, at noon, in the afternoon.<br>1. Which shadow is longer?<br>2. What causes your shadow to lengthen and shorten<br>3. What happens to your shadow at noon?<br>4. Why?<br>C. Have several children stand in a straight line. Mark the length of each child's shadow with a stick. Now measure each one. Will they all be the same number of inches or feet? Why not?<br>D. Take a large sheet of wrapping paper outside. Place it on the sidewalk so that your shadow falls | |

(continue

| | |
|---|---|
| the basic | Discipline Area Mathematics |
| is converted | Subject Measurement |
| synthesis into | Problem Orientation Shadows Grade Kgn. |
| ings can use | |

| VES | SUGGESTED LEARNING EXPERIENCES | |
|---|---|---|
| n<br>ows<br>ter<br><br>ill<br>ther<br>sun. | I. Student-centered in class activity<br>A. Observe and discuss shadows. Sample question: What causes shadows? Use an electric light, a candle, a slide projector, flashlight as well as the sun to develop them.<br>B. Measure shadows in the morning, at noon, in the afternoon.<br>1. Which shadow is longer?<br>2. What causes your shadow to lengthen and shorten<br>3. What happens to your shadow at noon?<br>4. Why?<br>C. Have several children stand in a straight line. Mark the length of each child's shadow with a stick. Now measure each one. Will they all be the same number of inches or feet? Why not?<br>D. Take a large sheet of wrapping paper outside. Place it on the sidewalk so that your shadow falls | II. Outside Resource and Community Activities<br>A. Art teacher could take children outside and let them draw each other on the blacktop and then develop "Art Masterpieces" from them. Could have a viewing before they are erased.<br>B. Science person could talk to the children about the sun.<br>1. What is it? A star?<br>2. Why is it called a Day Star?<br>3. how does the sun help you?<br>4. harm you? It is very hot.<br>5. Why does the sun look big? It is the star nearest the earth. |
| ns. | | |

(continued on reverse side)

Resource and Reference Materials

Publications:

Children's magazines
Humpty Dumpty
Highlights Magazine for Children
Ranger Rick's Magazine National Wildlife Federation

Books:
The First Robin
The Sun
Go With the Sun
Shadows
What makes a shadow?

Audio-Visual: Pictures showing shadows. Use opaque projector and have children match shadows with pictures.

Community: Greenhouse man to discuss importance of sun's energy to plants

Continued and Additional Sugg

I.(cont.)
D. on it. Have another chil
cut it out.
1. Is your shadow picture
2. Is it shorter than you
out. (Shorter, longer etc
3. Where was the sun when
drawn.
4. Can you recognize you
5. Your friend's?
E. The teacher will make a
children have shadows:

| | |
|---|---|
| 3 feet | 4 feet |
| 3 1/4 | 4 1/4 |
| 3 1/2 | 4 1/2 |
| 3 3/4 | 4 3/4 |

Have children indicate ta
(again use mathematical t

| ence Materials | Continued and Additional Suggested Learning Experiences |
|---|---|
| es<br><br>e for Children<br>zine National<br>on<br><br><br><br>w?<br><br>ures showing<br>ue projec-<br>ren match<br>res.<br><br>ouse man<br>ice of<br>ants | I.(cont.)<br>D. on it. Have another child trace around it. Now cut it out.<br>1. Is your shadow picture as tall as you are?<br>2. Is it shorter than you are? Measure to find out. (Shorter, longer etc. Use mathematical terms.<br>3. Where was the sun when your picture was being drawn.<br>4. Can you recognize your own shadow?<br>5. Your friend's?<br>E. The teacher will make a graph indicating how many children have shadows:<br>3 feet 4 feet<br>3 1/4 4 1/4<br>3 1/2 4 1/2<br>3 3/4 4 3/4 etc.<br><br>Have children indicate tallest, shortest etc . (again use mathematical terms) |

ESEA Title III - 69-70-0135-2 project I-C-E

No. 2

CONCEPT: All living organisms interact among themselves and their environment, forming an intricate unit called an ecosystem.

Discipline Area: Mathematics

Subject: Measurement & Gr

Problem Orientation: Ecosystem

| BEHAVIORAL OBJECTIVES | SUGGESTED LEARNING EXPERIEN | |
|---|---|---|
| Cognitive: The learner will create and measure parts of the environment for animal or plant.<br><br>Affective: Each child will become aware of the necessity for a balance of material used in order to produce an effective terrarium.<br><br>Skills to be Learned<br>Measurement of plants & water. Depth of charcoal, woods soil, Observation - growth of plants, "rain" in terrarium.<br>Increased vocabulary. | 1. Student-Centered in class activity<br>A. A small acquarium tank or a widemouth gallon jar can be placed in the "Show & Tell" area. When children begin to ask "what is it and what can we do with it?" the teacher can suggest: Let's begin building a little world in this container.<br>1. What kind of a world?<br>a. It can be plant or animal. Suggest plant because plants are easily gathered.<br>2. What do you think we will need?<br>a. Earth, plants and pernaps small animals.<br>3. Where will we find these things?<br>a. In woods & fields<br>B. Take children out into the woods.armed with trowels, buckets and plastic bags and collect materials for the terrarium.<br>(continued on reverse side) | II. Outside<br>Communi<br>A. Have s<br>dept. con<br>-ren abou<br>B. Visit<br>pare it w<br>1. Gree<br>complet<br>C. Go on<br>door Educ<br>is availa<br>look for<br>etc. anim<br>sects.<br>1. Brin<br>and try<br>in a sa<br>D. Art te<br>a mural o<br>field tri<br>E. Could<br>tures chi |

ganisms interact
ves and their environ-
an intricate unit
system.

Discipline Area Mathematics

Subject Measurement & Graphs

Problem Orientation Ecosystem Grade Kgr.

| OBJECTIVES | SUGGESTED LEARNING EXPERIENCES | |
|---|---|---|
| learner will<br>re parts<br>nt for ani-<br><br>child will<br>the<br>balance<br>in order<br>fective<br><br>rned<br>lants<br>f<br>soil,<br>owth<br>' in<br><br>lary: | 1. Student-Centered in class activity<br>A. A small acquarium tank or a widemouth gallon jar can be placed in the "Show & Tell" area. When children begin to ask "what is it and what can we do with it?" the teacher can suggest: Let's begin building a little world in this container.<br>1. What kind of a world?<br>a. It can be plant or animal. Suggest plant because plants are easily gathered.<br>2. What do you think we will need?<br>a. Earth, plants and perhaps small animals.<br>3. Where will we find these things?<br>a. In woods & fields<br>B. Take children out into the woods.armed with trowels, buckets and plastic bags and collect materials for the terrarium.<br>(continued on reverse side) | II. Outside Resource and Community Activities<br>A. Have someone from science dept. come and talk with children about plants and animals.<br>B. Visit a greenhouse and compare it with our terrarium.<br>1. Greenhouse is almost completely glass. Why?<br>C. Go on a field trip to Outdoor Educational Center if one is available and examine soil, look for moss, lichens, ferns etc. animal homes, water insects.<br>1. Bring back some moss and try to keep it green in in a saucer.<br>D. Art teacher could suggest a mural of the outdoor lab field trip.<br>E. Could make booklet of pictures children draw. |

RESOURCE AND REFERENCE MATERIALS

PUBLICATIONS:

Magazines: Ranger Rick's Magazine, National Wildlife, Childcraft

Books:

Klein, Leonore, What Is an Inch Harvey House Inc.

Lionni, Leo, Inch by Inch Astor-Honor Inc.

Audio-Visual:

Film strips-
"We Explore the Field and Meadow"

Study Prints - Kinds of Animals, Animal Babies
I-C-E RMC
# Kit 19

Community:

Speaker from a pet shop.

CONTINUED AND ADDITIONAL SUGGESTED LEARNI

B. (cont)

1. What will make the best terrarium
   a. Gravel or snad
   b. Charcoal
   c. Wood soil containing humus
   d. Small plant and tree seedlings - l soil to protect roots, masses and lic these in plastic bags until ready for number of plants gathered.
   e. A small saucer of water.
   f. An interesting rock or two
   g. a pane of glass to cover terrarium been assembled.

C. What shall we put in the container firs
1. Measure one or two inches of gravel o water will be stored here.
2. Again measure amount of charcoal. Thi sweet. Is it like charcoal we use to is full of holes.
3. Soil from woods - again Measure.
4. Plants - do not crowd - measure siz distance between as they are placed in t popsical sticks beside plants to measure
5. Put a small dish to hold water in soi dish - measure it- sprinkle plants with
6. Cover and place away from direct sunl growth.

| ATERIALS | CONTINUED AND ADDITIONAL SUGGESTED LEARNING EXPERIENCES |
|---|---|
| Maga- | B. (cont)<br>1. What will make the best terrarium<br>a. Gravel or snad<br>b. Charcoal<br>c. Wood soil containing humus<br>d. Small plant and tree seedlings - be sure to include soil to protect roots, masses and lichens. (Keep these in plastic bags until ready for use.) Can count number of plants gathered.<br>e. A small saucer of water.<br>f. An interesting rock or two<br>g. a pane of glass to cover terrarium after it has been assembled.<br>C. What shall we put in the container first?<br>1. Measure one or two inches of gravel or sand - excess water will be stored here.<br>2. Again measure amount of charcoal. This keeps soil sweet. Is it like charcoal we use to barbecue? It is full of holes.<br>3. Soil from woods - again Measure.<br>4. Plants - do not crowd - measure size of plants and distance between as they are placed in terrarium. Put popsical sticks beside plants to measure growth.<br>5. Put a small dish to hold water in soil. Put water in dish - measure it- sprinkle plants with water. Add rocks.<br>6. Cover and place away from direct sunlight and observe growth. |

ESEA Title III - 59-70-0135-2 Project I-C-E

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|---|---|---|
| CONCEPT | No. 3<br>Environmental factors are limiting on the numbers of organisms living within their influence, thus, each environment has a carrying capacity. | Discipline Area Mathemati<br>Subject Counting<br>Problem Orientation Carryi Capaci |

| BEHAVIORAL OBJECTIVES | SUGGESTED LEARNING EXP | |
|---|---|---|
| Cognitive: Children will construct a tulip bed. They will determine the number of tulips bulbs necessary to fill it to its carrying capacity.<br>Affective: Children will be able to observe the number of bulbs which will come up and question why some failed to mature. (i.e. cold weather, children, rodents.)<br><br>Skills to be learned<br>Counting bulbs - those planted "which came up".<br>Measuring - depth of hole, space between each bulb, size of bed, depth of good soil, count number of cement blocks put around bed. | I. Student-Centered in class activity<br>A. Have a father prepare a bed for the children. Take out clay soil and bring in good black soil.<br>1. Why?<br>B. Children can measure size of bed and decide on how many bulbs it will hold.<br>1. Ask mothers to donate some bulbs when they divide theirs. Count them and decide how many more we will need to buy.<br>C. Find out cost of bulbs, find out how much money we will need to purchase bulbs. Take trip to Greenhouse to purchase them.<br>D. Children bring small trowels or shovels to dig holes. Measure depth of holes - six inches deep.<br>(continued on reverse side) | II. C<br>C<br>A.<br>chi<br>(Ho<br>nee<br>B.<br>to<br>sar<br>ear<br>liz<br>C.<br>bee<br>can<br>wha |

factors are limiting

s of organisms living

influence, thus, each

has a carrying capacity.

Discipline Area Mathematics

Subject Counting and Measurement

Problem Orientation Carrying Capacity Grade Kgn

| OBJECTIVES | SUGGESTED LEARNING EXPERIENCES | |
|---|---|---|
| dren will con-<br>bed. They will<br>number of tu-<br>essary to fill<br>ying capacity.<br>dren will be<br>the number<br>will come up<br>some failed<br>cold<br>n, rodents.)<br><br>rned<br>those<br>ame up".<br>h of hole,<br>ch bulb,<br>th of<br>number<br>put | I. Student-Centered in class activity<br>A. Have a father prepare a bed for the children. Take out clay soil and bring in good black soil.<br>1. Why?<br>B. Children can measure size of bed and decide on how many bulbs it will hold.<br>1. Ask mothers to donate some bulbs when they divide theirs. Count them and decide how many more we will need to buy.<br>C. Find out cost of bulbs, find out how much money we will need to purchase bulbs. Take trip to Greenhouse to purchase them.<br>D. Children bring small trowels or shovels to dig holes. Measure depth of holes - six inches deep.<br>(continued on reverse side) | II. Outside Resource and Community Activities<br>A. Local Florist can tell children where bulbs come from (Holland), how many will be needed and cost.<br>B. Farmer father can explain to children why it is necessary to replace clay with good earth and what kind of fertilizer to use.<br>C. Perhaps someone who has been to Holland at tulip time can talk to children. Also what about Holland, Michigan? |

| Resource and Reference Materials | ~~Continued and Additional Suggested Lea~~ |
| --- | --- |
| Publications:<br>Ranger Rick's Books:<br>Up Above and Down Below<br>Bits that Grow Big<br>Eptein, Sam and Beryl, The First Book of Measurement, Franklin Watts Inc.<br><br>Audio-Visual:<br>Pictures of flowers<br><br>Community:<br>Greenhouse<br>Gardener | I.<br>D. (Cont.)<br>1. Count bulbs we have. How many<br>hold and still not be crowded?<br>2. Plant bulbs - be sure to plant<br>Cover loosely with soil.<br>a. Did we use all the soil we h<br>the holes? Why not? Measure am<br>E. Observations in Spring<br>1. How many bulbs came up?<br>2. Why did we lose some?<br>a. Rodents ate some, some rotte<br>children walking on bed and rid<br>over it when they were just com<br>3. Measure the plants periodicall<br>a. What helps them to grow?<br>4. How many more bulbs must be pl<br>to fill the bed again?<br>5. Suggest we put a cement block<br>to protect it in the future.<br>a. Count cement blocks necessar<br>6. Keep a graph showing the heig<br>color of tulip.<br>a. Which grew tallest<br>b. Why did some stay small? (to |

| Materials | Continued and Additional Suggested Learning experiences |
| --- | --- |
| The ent, | I.<br>D. (Cont.)<br>1. Count bulbs we have. How many will our bed hold and still not be crowded?<br>2. Plant bulbs - be sure to plant point up. Cover loosely with soil.<br>a. Did we use all the soil we had removed from the holes? Why not? Measure amount left over.<br>E. Observations in Spring<br>1. How many bulbs came up?<br>2. Why did we lose some?<br>a. Rodents ate some, some rotted, some froze, children walking on bed and riding bicycles over it when they were just coming up.<br>3. Measure the plants periodically,<br>a. What helps them to grow?<br>4. How many more bulbs must be planted in order to fill the bed again?<br>5. Suggest we put a cement block wall around bed to protect it in the future.<br>a. Count cement blocks necessary.<br>6. Keep a graph showing the height of each color of tulip.<br>a. Which grew tallest<br>b. Why did some stay small? (too crowded) |

CONCEPT: An adequate supply of pure water is essential for life. No. 4

Discipline Area: Mathemat

Subject: Measurem

Problem Orientation: Water

ESEA Title III - 59-70-0135-2 Project I-C-E

## BEHAVIORAL OBJECTIVES

Cognitive: The learner will contribute information for graphs on water quality and use.

Affective: The student will ask questions about the pollution in our water.

Skills to be Learned
Measurement
Making graphs

## SUGGESTED LEARNING EXPE

I. Student-Centered in class activity

A. Demonstrate through use of plastic bags that the earth is like a plastic bag and will hold just so much water.

1. Hold an empty plastic bag over a sink and pour two or three glasses of water into it. (Count the glasses).

a. What happens to the shape of the bag? (This can involve mathematical concepts.)

b. How can you tell the water is in the bag? You can see it. You can feel it. (Measure depth of water in bag)

2. Pour another glass of water into the bag now.

a. How many will it hold?

b. How many are in the bag now?

c. Measure depth of water after each addition.

(continued on reverse side)

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Discipline Area Mathematics

Subject Measurement Graphs

Problem Orientation Water Quality Grade Kgr.

| JECTIVES | SUGGESTED LEARNING EXPERIENCES | |
|---|---|---|
| rner will tion for ality<br><br>dent about the ater.<br><br>ed | I. Student-Centered in class activity<br>A. Demonstrate through use of plastic bags that the earth is like a plastic bag and will hold just so much water.<br>1. Hold an empty plastic bag over a sink and pour two or three glasses of water into it. (Count the glasses).<br>a. What happens to the shape of the bag? (This can involve mathematical concepts.)<br>b. How can you tell the water is in the bag? You can see it. You can feel it. (Measure depth of water in bag)<br>2. Pour another glass of water into the bag now.<br>a. How many will it hold?<br>b. How many are in the bag now?<br>c. Measure depth of water after each addition.<br>(continued on reverse side) | II. Outside Resource and Community Activities<br>A. Have a resource visitor speak to children on water pollution and explain, in language they will understand, what is really meant by pollution.<br>B. A conservation person can demonstrate the effect "pollution" is having on fish.<br>C. Take a field trip to the local pond or river and observe pollution. Collect samples of pond water and bring them back for observation. Examine a drop of water under the microscope. What did you see? |

| Resource and Reference Materials | Continued and Additional Suggested |
| --- | --- |
| Publications:<br><br>Running Water Holt, Rinehart-Winston RMC I-C-E<br>Ecology The Fresh waters and Man I-C-E 130 Mc (6)<br>Needed Clean Water pamphlet from I-C-E (Vertical file)<br><br>Audio-Visual:<br>Slide-tape presentation by George Howlett<br>"Kinds of Animals"Study Prints from Animals of the water<br>RMC I-C-E Kit 21<br>Film "Water" BAVI 1948<br><br>Community: Representative from the water plant<br>Well Driller<br>Water pollution expert from Paper Mill | I. (cont)<br>B. Have children bring in samples areas and smell them. Teacher coul ing which were fit to drink and so (smell and color)<br>C. Ask the students to respond to use water. Make a symbol for each pictorial graph chart. Example: raise their hands. Count the hands put a glass onto the chart.<br>Repeat this for about five other w |

| Materials | Continued and Additional Suggested Learning Experiences |
|---|---|
| inehart-<br>ers and<br>mphlet<br>ile)<br>on by<br>Prints<br>ater<br>tive | I. (cont)<br>B. Have children bring in samples of water from different areas and smell them. Teacher could make a graph indicating which were fit to drink and so on down the scale. (smell and color)<br>C. Ask the students to respond to the different ways they use water. Make a symbol for each type and put onto a pictorial graph chart. Example: How many drink water - raise their hands. Count the hands and for each hand, put a glass onto the chart.<br>Repeat this for about five other ways of water use. |

CONCEPT

No. 5
An adequate supply of clean air is essential because most organisms depend on oxygen, through respiration, to release the energy in their food.

Discipline A

Subject -

Problem Orie

| BEHAVIORAL OBJECTIVES | SUGGESTE |
|---|---|
| Cognitive: the child will differentiate between is more than, is less than, in sets of objects having to do with dust.<br><br>Affective: the child chooses the most polluted of several items and is able to see the difference.<br><br>Skills to be Learned<br>Observing<br>Counting<br>Comparing<br>Deciding | 1. Student-Centered in c<br>Activity<br>A. Show by using sheets<br>paper covered with base<br>that there is more dust<br>one area of the room th<br>in another.<br>1. Place sheets of 9"X<br>paper around the room<br>in various places in s<br>2. Collect papers and<br>which has more dust, w<br>has less. Use words "i<br>more than, is less tha<br>B. Hand out duplicated<br>sheets with squares sho<br>smoke stacks. Some smok<br>stacks have smoke emana<br>from them, others don't.<br>1. Observe and decide<br>which would produce mor<br>pollution. |

ate supply of clean air is

l because most organisms

n oxygen, through respiration,

se the energy in their food.

Discipline Area Mathematics

Subject Is more than, Is less than

Problem Orientation Air pollution Grade Kgr.

| IORAL OBJECTIVES | SUGGESTED LEARNING EXPERIENCES | |
|---|---|---|
| the child will te between is is less than, objects having dust.<br><br>the child most polluted items and is the difference.<br><br>e Learned | 1. Student-Centered in class Activity<br>A. Show by using sheets of paper covered with baseline that there is more dust in one area of the room than in another.<br>1. Place sheets of 9"X 12" paper around the room and in various places in school.<br>2. Collect papers and discuss which has more dust, which has less. Use words "is more than, is less than"<br>B. Hand out duplicated sheets with squares showing smoke stacks. Some smoke stacks have smoke emanating from them, others don't.<br>1. Observe and decide which would produce more pollution. | II. Outside Resource and Community Activities<br>A. Take field trip around community and observe which area has most smoke. Compare with other areas.<br>B. Have janitor come in to discuss the effects of dust on the school plant.<br>C. Observe dirty furnace filters at school and at home. Which has more or less? |

| Resource and Reference Materials | Continued and Additional Suggested Le |
| --- | --- |
| Publications:<br><br>Shuttlesworth. Clean Air<br>Doubleday 1968<br>Clean Air for Your Community 1969 Environmental Health Service<br><br>AudioVisual:<br>Filmstrip Air Pollution<br>D.C. Heath Co. 475 S. Dean St.<br>Englewood, N.J. 07131<br>Film - Air Around Us<br>McGraw Hill<br>330 W.42 Street<br>New York, New York<br><br>Community:<br>Sources of air pollution:<br>Garage<br>Farm<br>Paper Mill<br>busses | Singing Riddle<br><br>Sometimes it is full of rain<br>Sometimes it is full of snow<br>Sometimes it is moving<br>To make the sailboats go.<br>It's most important for people<br>For plants and animals too<br>It's right here in our school room,<br>and it's all around you.<br>What is it? Air |

| aterials | Continued and Additional Suggested Learning Experiences |
| --- | --- |
| l<br>an St.<br>: | Singing Riddle<br><br>Sometimes it is full of rain<br>Sometimes it is full of snow<br>Sometimes it is moving<br>To make the sailboats go.<br>It's most important for people<br>For plants and animals too<br>It's right here in our school room,<br>and it's all around you.<br>What is it? Air |

No. 6

CONCEPT: Natural resources are not equally distributed over the earth or over time and greatly affect the geographic conditions and quality of life.

Discipline Area: Mathematics

Subject: Inside-outsi

Problem Orientation: Natural A

| BEHAVIORAL OBJECTIVES | SUGGESTED LEARNING EXPERIEN | |
|---|---|---|
| Cognitive: The learner will place objects inside, outside and on a closed curve to show that he knows the area.<br><br>Affective: The learner will support the idea that areas are different.<br><br>Skills to be Learned<br>Terms<br>1. Inside, outside, on<br>2. Observation<br>3. Counting<br>4. Discussion<br>5. Sketching | 1. Student-Centered in class activity<br>A. Use globe to discover the distribution of water over the earth's surface.<br>B. Use circle of string, wire or pipe cleaners. Put two sets of objects inside the circle to show that there may be more things in one area than another.<br>1. Count objects in each set<br>2. Show one to one relationship.<br>C. Use activities for discussion of living organisms and their location and places you could find them. | II. Outsi<br>Commu<br>A. Field<br>or playg<br>the idea<br>on. Coun<br>the area<br>B. Sketch<br>a map of<br>to show<br>the objec<br>and on. |

Esea Title III - 59-70-0135-2 Project I-C-E

:ces are not equally

ver the earth or over

:ly affect the geo-

:ions and quality of

Discipline Area Mathematics

Subject Inside-outside in regard to curve

Problem Orientation Natural Area Grade Kgr

| BJECTIVES | SUGGESTED LEARNING EXPERIENCES | |
|---|---|---|
| :rner will<br>:ide,out-<br>:sed curve<br>:nows the<br><br>:arner will<br>that<br>:nt.<br><br>:ned<br><br>:,on | 1. Student-Centered in class activity<br>A. Use globe to discover the distribution of water over the earth's surface.<br>B. Use circle of string, wire or pipe cleaners. Put two sets of objects inside the circle to show that there may be more things in one area than another.<br>1. Count objects in each set<br>2. Show one to one relationship.<br>C. Use activities for discussion of living organisms and their location and places you could find them. | II. Outside Resource and Community Activities<br>A. Field trip to pond or park or playground area to develop the idea of inside, outside, on. Count various objects in the area of each.<br>B. Sketch on a large paper, a map of the area you visit to show general location of the objects inside, outside and on. |

| Resource and Reference Materials | Continued and Additional Suggested |
| --- | --- |
| Publications:<br><br>The Fresh Water and Man,<br>Benzeger I-C-E<br>Dr. Seuss McElligots Pool<br>Random House<br><br>Audio-Visual:<br>"Living Things are Everywhere"<br>Coronet Films 65 E<br><br>Community:DNR member to talk about Ponds and pond life. | |

| Materials | Continued and Additional Suggested Learning Experiences |
| --- | --- |
| ol<br><br>where" | |

ESEA Title III- 59-70-0135 -2 Project I-C-E

CONCEPT 7. Factors such as facilitating transportation, economic conditions, population growth, and increased leisure time have a great influence on changes in land use and centers of population density.

Discipline Area Mathematics

Subject--- Correspondence

Problem Orientation Land Use

| BEHAVIORAL OBJECTIVES | SUGGESTED LEARNING EXPERI | |
|---|---|---|
| Cognitive: The student will match cars to spaces to show one to one correspondence.<br><br>Affective: The student perceives the fact that all things take up space<br><br>Skills to be Learned<br>1. Matching one to one correspondence<br>2. Interpretation | I. Student-Centered in class activity<br>A. You will need two large tables or other space i.e. floor. Discuss space and what can happen in open spaces.<br>B. Ask the students to bring small cars or dolls. Mark off the table spaces into areas with masking tape. One car or one doll will go into each area.<br>C. Have the students place a car into each space one by one. As the cars are put in discuss what happens to the space and the kinds of things that can be done in the space.<br>D. Discuss how they see this process happening in their neighborhood. | II. Outsi<br>Commu<br>A. Go to<br>or apart<br>B. Go to<br>how the |

such as facilitating

ion, economic conditions,

growth, and increased

e have a great influence

in land use and centers of population density.

Discipline Area Mathematics

Subject--- Correspondence

Problem Orientation Land Use Grade Kgr.

| L OBJECTIVES | SUGGESTED LEARNING EXPERIENCES | |
|---|---|---|
| student will spaces to e corres- | I. Student-Centered in class activity<br>A. You will need two large tables or other space i.e. floor. Discuss space and what can happen in open spaces.<br>B. Ask the students to bring small cars or dolls. Mark off the table spaces into areas with masking tape. One car or one doll will go into each area.<br>C. Have the students place a car into each space one by one. As the cars are put in discuss what happens to the space and the kinds of things that can be done in the space.<br>D. Discuss how they see this process happening in their neighborhood. | II. Outside Resource and Community Activities<br>A. Go to a parking lot or ramp or apartment building.<br>B. Go to a building site to see how the land is being changed. |
| student fact s take | | |
| earned e to one | | |
| ion | | |

| Resource and Reference Materials | Continued and Additional Suggested Learning |
| --- | --- |
| Publications:<br><br>Ecology The CityBenziger<br>I-C-E # 130 Mc 10<br>Ecolab Kit by Leonard,<br>Johnson & Mann at I-C-E<br># 21 Kit<br>Eastman Philips, Go Dog Go<br>Beginner Book, Benziger Co.<br>Dr. Suess, One Fish, Two Fish<br>Red Fish, Blue Fish.<br>Beginner books Benziger<br><br>Audio-Visual:<br><br>Community: Construction<br>worker<br>Parking Attendant | |

## and Additional Suggested Learning Experiences

ESEA Title III - 59-70-0135-2 Project I-C-E

CONCEPT 8. Cultural, economic, social, and political factors determine status of man's values and attitudes toward his environment

Discipline Area Math

Subject Mone

Problem Orientation Qua

| BEHAVIORAL OBJECTIVES | SUGGESTED LEARNING E | II |
|---|---|---|
| Cognitive: Given money coins the child will match the coin to specific items for the creation of an environment.<br><br>Affective: The student will evaluate his environment and propose changes.<br><br>Skills to be Learned<br><br>1. Matching coins<br>2. Discussion and group work<br>3. Cause - effect | I. Student-Centered in class activity<br>A. This is a simulation game. Teacher sets up the display as on the chart. She will need money and representation of the objects on the chart. (There are 2 options)<br>B. Introduce the penny, dime and nickel.<br>C. Give each student a paper penny, nickel, and dime. With the money they are to buy 1 item in each column of the chart. These items are to be added to their own little world or their dinner plate.<br>D. Talk about the created world or plate. Reason why they want to live - their good things - bad things<br>(continued on reverse side) | A<br>b<br>c |

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and

nvironment

Discipline Area Mathematics

Subject — Money

Problem Orientation Quality of Life Grade Kgr.

SUGGESTED LEARNING EXPERIENCES

I. Student-Centered in class activity

A. This is a simulation game. Teacher sets up the display as on the chart. She will need money and representation of the objects on the chart. (There are 2 options)

B. Introduce the penny, dime and nickel.

C. Give each student a paper penny, nickel, and dime. With the money they are to buy 1 item in each column of the chart. These items are to be added to their own little world or their dinner plate.

D. Talk about the created world or plate. Reason why they want to live - their good things - bad things

(continued on reverse side)

II. Outside Resource and Community Activities

A. Evaluate their city block in accordance with their created environment.

| Resource and Reference Materials | Continued and Additional Suggested Learning |
| --- | --- |
| Publications:<br><br>George McCue, Ecology - The City<br>Benziger, Web of Life at ICE No. 130 Mc<br><br>Audio-Visual:<br>Local materials used in the Social Studies City Unit.<br>You may want to try the Simulation Game, Man in his Environment available at ICE<br><br>Community:<br><br>City park commissioner or planner. | (This can be group work experience with the deciding on the things bought)<br><br>Other rules or factors can be introduced to simulation game.<br><br>Many other concepts can be developed from t world area.<br>1. What happens when it rains?<br>2. Living things - relationships with them,<br>3. The broadness depends upon the resources er. It could be extended over a week or mor introduce a trading of items. |

## Continued and Additional Suggested Learning Experiences

(This can be group work experience with the group deciding on the things bought)

Other rules or factors can be introduced to this simulation game.

Many other concepts can be developed from the little world area.

1. What happens when it rains?
2. Living things - relationships with them, take for them.
3. The broadness depends upon the resources of the teacher. It could be extended over a week or more. Possibly introduce a trading of items.

Chart to be displayed for student matching use

Given a box to be used as an environment, the student or group

| | | |
|---|---|---|
| Squirrel | Grass | Tree |
| Wind up toy airplane | Black top | Jungl |
| Penny | Nickel | Dime |

Chart to be displayed for student matching use

Given a plate and glass the student will choose the foods he will

| | | |
|---|---|---|
| candy bar | glass of milk | pictu |
| orange or apple | can of pop | pictu |
| penny | nickel | dime |

olayed for student matching use

o be used as an environment, the student or group will create an environment.

| | |
|---|---|
| Grass | Tree |
| Black top | Jungle Gym |
| Nickel | Dime |

rplane

layed for student matching use

d glass the student will choose the foods he will eat

| | |
|---|---|
| glass of milk | picture of a well balanced meal |
| can of pop | picture of a meal lacking balance |
| nickel | dime |

ESEA Title III - 59-70-0135-2 Project I-C-E

CONCEPT: C9. Man has the ability to manage, manipulate, and change his environment.

Discipline Area: Ma

Subject - Ge

Problem Orientation

| BEHAVIORAL OBJECTIVES | SUGGESTED LEARNI |
|---|---|
| Cognitive: The student will match the geometric shapes to the trees in their yard and report to the class.<br><br>Affective: The student will question the reason why the shapes of trees are changed.<br><br>Skills to be Learned<br>1. Geometric shape identification<br>2. Counting<br>3. Reporting<br>4. Matching | I. Student-Centered in class activity<br>A, Using flannel board or cut shapes introduce the basic shapes of triangle, square and circle.<br>B. Teacher and student go into the schoolyard and identify the shapes of trees and bushes.<br>1. Sketch trees that match the shapes.<br>2. Cut various shapes.<br>C. Take a census of trees in the school area that have been changed by man. Trees trimmed for electrical lines, hedges, and for safety reasons.<br>D. Find pictures of trees, both natural and changed and have the class respond to their shape and indicate whether or not they were changed.<br>E. Each student draw trees of one of the various shapes. Other students identify the shape. |

ility to manage,

d change his

Discipline Area Mathematics

Subject Geometry

Problem Orientation Natural Areas Grade Kgr

| OBJECTIVES | SUGGESTED LEARNING EXPERIENCES | |
|---|---|---|
| tudent<br>eometric<br>ees in<br>eport to<br><br>tudent will<br>son why the<br>are changed.<br><br>rned<br>pe | I. Student-Centered in class activity<br>A, Using flannel board or cut shapes introduce the basic shapes of triangle, square and circle.<br>B. Teacher and student go into the schoolyard and identify the shapes of trees and bushes.<br>1. Sketch trees that match the shapes.<br>2. Cut various shapes.<br>C. Take a census of trees in the school area that have been changed by man. Trees trimmed for electrical lines, hedges, and for safety reasons.<br>D. Find pictures of trees, both natural and changed and have the class respond to their shape and indicate whether or not they were changed.<br>E. Each student draw trees of one of the various shapes. Other students identify the shape. | II. Outside Resource and Community Activities<br>A. Give each student a pattern of the three shapes and have the students look in their immediate home area and count the number of trees or bushes that have each shape. They can report this information the next day.<br>B. Count in the home area, the trees and bushes changed by man.<br>C. Either visit a landscaper and his tree area or have the landscaper come in to speak. |

| Resource and Reference Materials | Continued and Additional Suggested Learn |
| --- | --- |
| Write to Forestry Service for information:<br>Eastern Region<br>633 W. Wisconsin Ave.<br>Milwaukee, Wisconsin 53203<br>McCormick, Jack, The Life of the Forest<br><br>Our Living World of Nature Series, McGraw Hill<br>May, Julian, The Big Island Follett<br>Trees for a more livable Environment free from:<br>Tree Booklet<br>Department SI<br>Orthro Division<br>Chevron Chemical Co.<br>200 Bush Street<br>SanFrancisco, California 94120<br>Schlein, Miriam, Shapes William Scott Inc.<br><br>Audio-Visual:<br><br>Nature's Half Acre at I-C-E<br><br>Community:<br>Landscaper<br>Forestry Service Personnel | |

| terials | Continued and Additional Suggested Learning Experiences |
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| -E<br><br>1 | |

ESEA Title III - 59-70-0135-2 Projece I-C-E

CONCEPT 10. Short-term economic gains may produce long-term environmental losses.

Discipline Area Mather

Subject Separa

Problem Orientation Wild

| BEHAVIORAL OBJECTIVES | SUGGESTED LEARNING EX |
|---|---|
| Cognitive: The learner will separate sets into smaller sets by counting and moving objects.<br><br>Affective: The learner will advocate the protection of bird eggs.<br><br>Skills to be Learned<br>1. Rhyming<br>2. Counting<br>3. Separating (subtracting)<br>4. Discussion | I. Student-Centered in class Activity<br>A. Introduce the idea of birds by showing pictures or the study prints from I-C-E - (Kinds of Animals or Animal Babies)<br>B. Use the jingle with the child responding and saying the number needed.<br><br>Five brown eggs lying by the shore.<br>One rolled away and then there were four<br>Four blue eggs nested in a tree<br>One got hit and then there were three<br>Three speckled eggs are really quite a few.<br>When one was hatched, there were only two<br>Two baby birds weren't much fun<br>One was hit by a boy and there was only one.<br><br>(continued on reverse side) | II. |

may

mental

Discipline Area Mathematics

Subject Separating Sets

Problem Orientation Wildlife Resources Grade Kgr.

SUGGESTED LEARNING EXPERIENCES

. Student-Centered in class Activity

. Introduce the idea of birds by showing pictures or the study prints from I-C-E - (Kinds of Animals or Animal Babies)

. Use the jingle with the child responding and saying the number needed.

Five brown eggs lying by the shore.
One rolled away and then there were four
Four blue eggs nested in a tree
One got hit and then there were three
Three speckled eggs are really quite a few.
When one was hatched, there were only two
Two baby birds weren't much fun
One was hit by a boy and there was only one.

(continued on reverse side)

II. Outside Resource and Community Activities

A. Go on a bird walk.
B. Invite someone from Audubon Society.

| Resource and Reference Materials | Continued and Additional Suggested Learning Exp |
| --- | --- |
| Publications:<br><br>Birds - Holt-Rinehart & Winston at I-C-E<br>Peterson The Birds, New York Time-Life Inc. 1967<br><br>Children's Books:<br>Friskey, Margaret, Seven Diving Ducks Children's Press Inc.<br>Pease, Josephine, One-Two-Cock-a-Doodle Doo, Rand McNally & Co.<br><br>Audio-Visual:<br>Kinds of Animals and Animal Babies Study Print Packages at I-C-E K. 21<br>Birds and Nests BAVI<br>Birds and their Homes BAVI<br><br>Community:<br>Audubon speaker<br>Members of bird watcher clubs. | I. (Cont.)<br>C. Use a flannel board nest and eggs. Have t put the number of eggs you name into the nes have some destroyed by a person just for fu the student separate or take out the number<br>D. After doing several different ones like t discuss what happens when people do somethin and destroy the environment.<br>E. This lesson can be changed to handle dest birds. |

| ials | Continued and Additional Suggested Learning Experiences |
| --- | --- |
| on<br>s | I. (Cont.)<br>C. Use a flannel board nest and eggs. Have the students put the number of eggs you name into the nest. Then have some destroyed by a person just for fun. Have the student separate or take out the number destroyed.<br>D. After doing several different ones like the above, discuss what happens when people do something for fun and destroy the environment.<br>E. This lesson can be changed to handle destroying live birds. |

ESEA Title III - 59-70-0135-2 Project I-C-E

CONCEPT 11. Individual acts, duplicated or compounded, produce significant environmental alterations over time.

Discipline Area Math

Subject Sets

Problem Orientation Wa

| BEHAVIORAL OBJECTIVES | SUGGESTED LEARNING | II. |
|---|---|---|
| Cognitive: The child will through manipulation of objects recognize the idea of one, two, three, four and five, in sets.<br><br>Affective: The child will organize objects in his environment into sets and see how they may contribute to the problem of pollution.<br><br>Skills to be Learned<br>Listing sets of objects<br>Matching sets | I. Student-Centered in class activity<br>A. Have children create sets of objects to show meaning of one, two, three, four and five.<br>B. Have children match sets of the same quantity.<br>1. Use flannel board to match like sets.<br>C. Have the students fill six glass containers with eight oz. of water. Into each successive container put 0, 1, 2, 3, 4, and 5 drops of food coloring. The student can match the numeral with the number of drops put into the jars by putting the numeral on a paper by each jar.<br>D. Compare what happens to each jar. Which one is darker - why?<br>E. You can repeat this procedure with coffee or oil.<br>F. Then dump all the jars together, and discuss the effects of duplication of individual acts. | A. st to it 1<br>B. po: wa |

. duplicated or

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ations over

Discipline Area Mathematics

Subject Sets

Problem Orientation Water Pollution Grade Kgr.

| IVES | SUGGESTED LEARNING EXPERIENCES | |
|---|---|---|
| will<br>of<br>idea<br>our<br><br>will<br>is<br>and<br>ribute<br>lution.<br><br>ts | I. Student-Centered in class activity<br>A. Have children create sets of objects to show meaning of one, two, three, four and five.<br>B. Have children match sets of the same quantity.<br>1. Use flannel board to match like sets.<br>C. Have the students fill six glass containers with eight oz. of water. Into each successive container put 0, 1, 2, 3, 4, and 5 drops of food coloring. The student can match the numeral with the number of drops put into the jars by putting the numeral on a paper by each jar.<br>D. Compare what happens to each jar. Which one is darker - why?<br>E. You can repeat this procedure with coffee or oil.<br>F. Then dump all the jars together, and discuss the effects of duplication of individual acts. | II. Outside Resource and Community Activities<br>A. Take a walk to a nearby stream or park in the community to observe items discarded in it.<br>1. Collect items put in sets.<br>B. Take a trip to a sewage disposal unit to view what dirty water looks like. |

| Resource and Reference Materials | Continued and Additional |
| --- | --- |
| Publications:<br><br>Hoffman, A Trip to the Pond, Garden City, Doubleday 1966<br>Hageman, What is Water? ChicagoB Benefic Press 1960<br>Peterson, What is Water Chicago, Benefic Press 1960<br><br>Audio-Visual:<br>Film 4708 Litterbug color 10 min. 4.75 BAVI<br>6446 Living Things in a Drop of Water color 10 min. BAVI<br><br>Community:<br>Park<br>Stream<br>Sewage Disposal Unit | |

| al S | Materials | Continued and Additional Suggested Learning Experiences |
|---|---|---|
| | Pond, 1966 | |
| | 1960 | |
| | 1960 | |
| | in. | |

ESEA Title III-59-70-0135-2 Project I-C-E

CONCEPT 12. Private ownership must be regarded as a stewardship and should not encroach upon or violate the individual right of others.

Discipline Area Mathematics

Subject Terms for se

Problem Orientation noise

| BEHAVIORAL OBJECTIVES | SUGGESTED LEARNING EXPERIE | |
|---|---|---|
| Cognitive: The students will use the terms for sets in comparing different levels of noise.<br><br>Affective: The student will promote reduction of noise<br><br>Skills to Be Learned<br>1. Terms: greater than<br>same as<br>less than<br>2. Comparison | 1. Student-Centered in class activity<br>A. Tape various sounds, both loud and soft and identify each sound on the tape.<br>B. Establish a standard by taping a medium sound with which you can compare others.<br>C. Compare the sounds collected with the standard sound.<br>Use terms: Greater than<br>Same as<br>Less than<br>D. Divide the class in half. Half of the group taps on a surface. You can reduce the number tapping. Discuss what happens to the sound as fewer persons tap. Then add more tappers from the non participating half. Discuss what happens to the volume of sound. | II. Outsi<br>Comm<br>A. Recor<br>try/in<br>sounds-<br>not appe |

ership must be re-
warenship and should
on or violate the
of others.

Discipline Area Mathematics

Subject Terms for sets

Problem Orientation Noise Grade Mgr.

| OBJECTIVES | SUGGESTED LEARNING EXPERIENCES | |
|---|---|---|
| udents<br>for sets<br>rent levels<br><br>udent<br>tion<br><br>ec.<br>nan | 1. Student-Centered in class activity<br>A. Tape various sounds, both loud and soft and identify each sound on the tape.<br>B. Establish a standard by taping a medium sound with which you can compare others.<br>C. Compare the sounds collected with the standard sound.<br>Use terms: Greater than<br>Same as<br>Less than<br>D. Divide the class in half. Half of the group taps on a surface. You can reduce the number tapping. Discuss what happens to the sound as fewer persons tap. Then add more tappers from the non participating half. Discuss what happens to the volume of sound. | II. Outside Resource and Community Activities<br>A. Record sounds in the country/in the city. Discuss the sounds- things that appeal, do not appeal. |

| Resource and Reference Materials | Continued and Additional Sugges |
| --- | --- |
| Publications:<br><br>Noise Pollution Addison-Wesley at I-C-2<br>EQ Index at I-C-1 Unit 9<br>Ecology, Pollution, Environment at I-C-2<br><br>Audio-Visual:<br>Listen Box - Identify the various sounds produced.<br>Records of basic sounds<br><br>Community:<br><br>Bar tester | |

| s | Materials | Continued and Additional Suggested Learning Experiences |
|---|---|---|
| | on-Wesley ac | |
| | t 9<br>nvironment | |
| | the<br>ea.<br>ts | |

PROJECT I-C-E Episode Evaluation Form (Reproduce or duplicate as

Please fill in:
Subject: _____
Grade: _____
Concept No. Used: _____

In commenting on each episode used in your clas
form. Feel free to adapt it and add more pages.
your critiques and comments - negative and positi
hand column, please rate (poor, good, excellent)
make specific comments or suggestions if possible
vided to help us make this a more usable guide.

| Poor | Good | Exc. | |
|---|---|---|---|
| | | | I. Behavioral Objectives<br>A. Cognitive: |
| | | | B. Affective: |
| | | | II. Skills Developed |
| | | | III. Suggested Learning Experiences<br>A. In Class: |
| | | | B. Cutside & Community Activities: |
| | | | IV. Suggested Resource & Reference Materials<br>(specific suggestions & comments) |

Serving Sch

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Episode Evaluation Form (Reproduce or duplicate as needed)

In commenting on each episode used in your class, please use this form. Feel free to adapt it and add more pages. Let us know all your critiques and comments - negative and positive. In the left-hand column, please rate (poor, good, excellent) each item. Also, make specific comments or suggestions if possible in the space provided to help us make this a more usable guide. Thank you.

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Project I-C-E
Serving Schools in CESA 3-8-9
1927 Main Street
Green Bay, WI 54301

ED 079155

Project I - C - E INSTRUCTION - CURRICULUM - ENVIRONME

# A SUPPLEMENTARY PROGRAM FOR ENVIRONMENTAL EDUCATION

DISCIPLINE AREA Mathematics GRADE 1

Produced under Title III E.S.E.A.
PROJECT I-C-E
Serving Schools in CESA's 3-8-9
1927 Main Street
Green Bay, Wisconsin 54301
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Robert Warpin
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George Howlet

SE 016 543

C - E INSTRUCTION - CURRICULUM - ENVIRONMENT

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TARY PROGRAM FOR ENVIRONMENTAL EDUCATION

AREA Mathematics GRADE 1

der Title III E.S.E.A.
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## PREFACE

"Oikus" for house is the Greek origin of the term "ecology". E studies our house--whatever or wherever it may be. Like an umbre expand or contract to fit many ranges--natural and man-made. We c envirorments, our many "houses" if we omit rancor and cite long ra complexities. Cur "oikus" uses the insights of all subjects. Thu multidisciplinary program like ours necessarily results. Also, si a long time, our program ranges K thru 12. The environment mirror values. These values have their origin in the "oikus" of our coll minds. Let us become masters of our house by replacing the Greek with "Know thyself and thine house."

1. Written and designed by your fellow teachers, this guide is sup to fit appropriately into existing, logical course content.
2. Each page or episode offers suggestions. Knowing your students to adapt or adopt. Limitless chances are here for your experim Many episodes are self contained, some open-minded, still other developed over a few days.
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BAVI is Bureau of Audio Visual Instruction, 1327 University Aven Madison, Wisconsin 53701 (Phone: 608-262-1644).

Cognitive means a measurable mental skill, ability, or process ba

Affective refers to student attitudes, values, and feelings.

## PREFACE

ouse is the Greek origin of the term "ecology". Environmental education se--whatever or wherever it may be. Like an umbrella, our house can act to fit many ranges--natural and man-made. We can add quality to our ur many "houses" if we omit rancor and cite long range gains, costs, and ur "oikus" uses the insights of all subjects. Thus, a rational, positive, y program like ours necessarily results. Also, since attitudes grow over program ranges K thru 12. The environment mirrors our attitudes or alues have their origin in the "oikus" of our collective and individual ecome masters of our house by replacing the Greek adage of "Know thyself" elf and thine house."

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ESEA Title III- 59-70-0135-2 Project I-C-E

CONCEPT: Energy from the sun, the basic source of all energy, is converted through plant photosynthesis into a form all living things can use for life processes.

Discipline Area: Mathematic

Subject: Telling Ti

Problem Orientation: Sunligh

| BEHAVIORAL OBJECTIVES | SUGGESTED LEARNING EXPE | |
|---|---|---|
| Cognitive: Each child will tell the basic hours and activities done at each hour. Also the child will explain orally the effects of days length on the activities he does.<br><br>Affective: In learning how sun affects length of day each child will try to show an awareness in use of time.<br><br>Skills to be Learned<br>1. Telling Time<br>2. Observation<br>3. Discussion<br>4. Compare | 1. Student-Centered in class activity<br><br>A. Basic time-hours-things done at each hour, etc.<br>B. Observe and record what time sun rises and sets for one week. Compare winter and summer times.<br>C. Discuss how hours of light influence what we do, what animals do, what happens to plants, etc.<br>D. Plants<br>1. Leave in sunlight<br>2. Cover one and expose to light for only 1 hr. a day. Compare<br>E. Measure amounts of water evaporated by sun. | II. Out<br>Act<br>A. El<br>to ta<br>regar<br>B. Se<br>the c<br>he wa<br>C. Ho<br>famil<br>now i<br>D. Lo |

he basic source Discipline Area Mathematics

verted through Subject Telling Time

into a form all Problem Orientation Sunlight/daylight Grade 1

for life processes.

| LS | SUGGESTED LEARNING EXPERIENCES | |
|---|---|---|
| 11 | 1. Student-Centered in class activity<br><br>A. Basic time-hours-things done at each hour, etc.<br>B. Observe and record what time sun rises and sets for one week. Compare winter and summer times.<br>C. Discuss how hours of light influence what we do, what animals do, what happens to plants, etc.<br>D. Plants<br>1. Leave in sunlight<br>2. Cover one and expose to light for only 1 hr. a day. Compare<br>E. Measure amounts of water evaporated by sun. | II. Outside Resource and Community Activities<br>A. Electric Power Co. representative to talk on use of electricity in regards to length of day.<br>B. Senior Citizen to talk about how the day length influenced life when he was a boy.<br>C. Mother or father of medium sized family talks about her/his day and how it is affected by time.<br>D. Local farmer, businessman, etc. |

| Resource and Reference Materials | A Continued and Addi |
| --- | --- |
| Publications:<br><br>Describing and Classifying Measurement<br>Unit 4 Using Our Senses<br>Bragdon, Lillian, Tell me the Time Please,<br>Philadelphia, Lippincott, 1946<br>Francoise, What time is it Jean Marie? N.Y. Schribner, 1963<br><br>Audio-Visual:<br>Film strips showing photo-synthesis<br>Movie (color) Green Plants and Sunlight nc. 6747 BAVI<br><br>Community:<br>Show experiments of plants that have been exposed to sunlight and no sunlight done by Jr. High biology students. | |

| s | A Continued and Additional Suggested Learning Experiences |
| --- | --- |

ESEA Title III - 59-70-0135-2 Project I-C-E

CONCEPT: All living organisms interact among themselves and their environment, forming an intricate unit called an ecosystem.

Discipline Area: Mathemati

Subject: Addition

Problem Orientation: Ecologi

| BEHAVIORAL OBJECTIVES | SUGGESTED LEARNING EXPLR | |
|---|---|---|
| Cognitive: The child will do 5 addition and 5 subtraction showing that 1 of the addition problems is the opposite of one of the subtraction problems.<br><br>Affective: The child will defend the idea that for every addition problem there is a subtraction problem to undo it.<br><br>Skills to be Learned<br>1. Observing<br>2. Cause-effect thinking<br>3. Adding and subtracting are opposites. | I. Student-Centered in class activity<br>A. Go for a field trip. Investigate where water is, where it comes from and where it goes. Watch clouds when it rains. Fog is another thing to watch.<br>B. Develop the water cycle showing how each part fits in. Show on a bulletin board with each part moveable. Show what would happen if one part is missing. Develope the idea that fog and rain are the opposite of each other.<br>C. Do addition and subtraction problems showing that addition is like fog and subtraction is like rain.<br>1. One day 5 inches of rain fell. The next day 3 inches evaporated. How much was left?<br>2. On Monday 2 inches of rainfall. On Tuesday 2 inches of rainfall. (continued on reverseside | II. Outsi Activ<br>A. Fiel weather<br>B. Invi class t ditions simple weatner |

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vironment,

it called

Discipline Area Mathematics

Subject Addition - Subtraction

Problem Orientation Ecological Cycles Grade 1

SUGGESTED LEARNING EXPERIENCES

I. Student-Centered in class activity

A. Go for a field trip. Investigate where water is, where it comes from and where it goes. Watch clouds when it rains. Fog is another thing to watch.

B. Develop the water cycle showing how each part fits in. Show on a bulletin board with each part moveable. Show what would happen if one part is missing. Develope the idea that fog and rain are the opposite of each other.

C. Do addition and subtraction problems showing that addition is like fog and subtraction is like rain.

1. One day 5 inches of rain fell. The next day 3 inches evaporated. How much was left?

2. On Monday 2 inches of rainfall. On Tuesday 2 inches of rainfall.

(continued on reverseside

II. Outside Resource and Community Activities

A. Field trip to local streams or weather station.

B. Invite local weatherman to visit class to explain how weather conditions are caused. Give children simple methods of predicting the weather.

| Resource and Reference Materials | Continued and Additional |
| --- | --- |
| **Publications:**<br><br>Rain and Snow Holt, Rinehart, and Winston Project I-C-E RMC<br>Introduction to Atmosphere Riehl, Herbert<br>What is water, Hagaman, Adaline, Chicago Benefic Press, .960<br>Water All Around, Pine, Tillie, New York, McGraw Hill<br><br>**Audio-Visual:**<br>Film 280 The Gifts, Project I-C-E RMC<br>Filmstrip. - The Muddy Rain Drops - Conservation Series from SVE.<br>Rainshower Churchill Films 6671 Sunset Boulevard Los Angeles, Cal. 90025<br><br>**Community:**<br>Visit to City's water supply to observe | I. (cont)<br>C.<br>2. How much rain fe |

| ence Materials | Continued and Additional Learning Experiences |
| --- | --- |
| t, Rinehart,<br>t I-C-E<br><br>mosphere<br><br>aman,<br>enefic<br><br>Pine,<br><br>s,<br><br>uddy<br>rvation<br><br>ill Films<br>unset Boulevard<br>geles, Cal.<br>90025<br><br>ter | I. (cont)<br>C.<br>2. How much rain fell altogether? |

ESEA Title III - 59-70-0135-2 Project I-C-E

CONCEPT 3. Environmental factors are limiting on the numbers of organisms living within their influence, thus, each environment has a carrying capacity.

Discipline Area M

Subject N

Problem Orientation

| BEHAVIORAL OBJECTIVES | SUGGESTED LEARNIN |
|---|---|
| Cognitive: Through a test each pupil will show that each set has its own carrying capacity.<br><br>Affective: Pupils will support the idea that many things have a carrying capacity.<br><br>Skills to be Learned<br>1. Counting<br>2. Recording | I. Student-Centered in class activity<br>A. Land of One - Develop the land of one- each pupil bring picture, objects etc. to develop the land of one. (trying not to duplicate any object) Take one other number and develop a land for that number also.<br>B. (Each number has its own unique carrying capacity.<br>1. Take a sheet with numbers on it, pupils develop sets for each member. (overhead nice to use also)<br>2. Visit some areas where carrying capacity is important. (Elevator, car, small room etc.) find out the carrying capacity for each of these places. Count and record number of people in each area.<br>C. TEST on counting.<br>1. Sets of various objects - each pupil count objects in set and write number of the set. (continued on rever |

ntal factors are limit-. Discipline Area Mathematics

umbers of organisms Subject Numbers - sets

n their influence, thus, Problem Orientation Population Control Grade 1

ment has a carrying capacity.

| BJECTIVES | SUGGESTED LEARNING EXPERIENCES | |
|---|---|---|
| ugh a test show that own y. | I. Student-Centered in class activity<br>A. Land of One - Develop the land of one- each pupil bring picture, objects etc. to develop the land of one. (trying not to duplicate any object) Take one other number and develop a land for that number also.<br>B. (Each number has its own unique carrying capacity.<br>1. Take a sheet with numbers on it, pupils develop sets for each member. (overhead nice to use also)<br>2. Visit some areas where carrying capacity is important. (Elevator, car, small room etc.) find out the carrying capacity for each of these places. Count and record number of people in each area.<br>C. TEST on counting.<br>1. Sets of various objects - each pupil count objects in set and write number of the set. (continued on reverse side) | II. Outside Resource and Community Activities<br>A. Safety expert<br>B. Field trip to beach to show carrying capacity of various objects and to count sea shells, rocks, etc. |
| ls will that a y. | | |
| rned | | |

| Resource and Reference Materials | Continued and Additional Suggest |
| --- | --- |
| Publications:<br><br>Adler, Irving, Sets New York, John Day Company 1964<br>Tudor, Tasha, 1 is One, New York, Henry Z Walch Inc. 1956.<br>Experiences with Living Things Ecology for eight year olds Curriculum Development Council for Southern New Jersey<br>Project 1-C-E Resource Center<br><br>Audio-Visual:<br>1. Opaque projector<br>For showing pictures brought to school by pupils.<br><br>Community:<br>Building Inspector | I. C. (cont)<br>2. Given an empty set pupil to match the number beside t |

Continued and Additional Suggested Learning Experiences

I. C. (cont)

2. Given an empty set pupil must fill the set to match the number beside the empty set.

ESEA Title III- 59-70-0135-2 Project I-C-E

CONCEPT 4. An adequate supply of pure water is essential for life.

Discipline Area Mathematics

Subject Measurement

Problem Orientation Water Qual

| BEHAVIORAL OBJECTIVES | SUGGESTED LEARNING EXPERIE | |
|---|---|---|
| Cognitive: Each child will make a chart on the effect of water quality and time of freezing.<br><br>Affective: The child will question the quality of water that he comes in contact with during his daily routine.<br><br>Skills to be learned<br>1. Measurement of<br>a. time<br>b. liquid<br>c. area<br>2. Chart Making | I. Student-Centered in class activity<br>A. Ice<br>1. Fill several like containers with water. One containing pure water, and the other containers having water mixed with same other substances like salt, mud, drinking water. Place containers in freezer or outside on winter day.<br>2. Keep a record on how long it takes for each container to freeze.<br>3. Also check on how much expansion in each container.<br>4. Chart on results.<br>B. Effects on life.<br>1. Pupils try to find information on how water quality affects life. (teacher may supply sources of such information.)<br>C. Use anti-freeze and find how various amounts affect freezing time.<br>D. Look at water and ice using a hand lens. See if they notice any difference. | II. Outsid<br>Commun<br>A. Ice c<br>B. Refri<br>C. Water<br>D. Field<br>water is |

ire Water

Discipline Area Mathematics

Subject Measurement of heigth and time

Problem Orientation Water Quality Grade 1

SUGGESTED LEARNING EXPERIENCES

I. Student-Centered in class activity

A. Ice
1. Fill several like containers with water. One containing pure water, and the other containers having water mixed with same other substances like salt, mud, drinking water. Place containers in freezer or outside on winter day.
2. Keep a record on how long it takes for each container to freeze.
3. Also check on how much expansion in each container.
4. Chart on results.

B. Effects on life.
1. Pupils try to find information on how water quality affects life. (teacher may supply sources of such information.)

C. Use anti-freeze and find how various amounts affect freezing time.

D. Look at water and ice using a hand lens. See if they notice any difference.

II. Outside Resource and Community Activities

A. Ice company
B. Refrigeration expert
C. Water pollution expert
D. Field trip to an area where water is important.

| Resource and Refernece Materials | Continued and Additional S |
| --- | --- |
| Publications:<br><br>What is Water, Hagaman, A.P. Chicago, Benefic Press 1960<br>Water All Around Pine, Tillie S. New York McGraw Hill 1966<br><br>Audio-Visual:<br>Films<br>2384 Water Supply (academy)<br>1947 DAVI<br>6141 Every Drop fit to Drink<br>1965 DAVI<br>3394 Water DAVI 1948 United World DAVI<br><br>Community:<br>Ask water pollution expert from Paper Mill in area to talk to class concerning effect of pollution on life in rivers and streams and the proportion of pollution existing. | |

| aterials | Continued and Additional Suggested Learning Experiences |
| --- | --- |
| A.P.<br>1960<br>illie S.<br>66 | |
| iemy)<br>rink<br>ted | |
| rt<br>ion<br>on | |

CONCEPT

5. An adequate supply of clean air is essential because most organisms depend on oxygen, through respiration, to release the energy in their food.

Discipline Area Mathemati

Subject Measureme

Problem Orientation Air po

| BEHAVICRAL OBJECTIVES | SUGGESTED LEARNING EXPL | |
|---|---|---|
| Cognitive: Each child will measure the distance needed to smell each smell and place this on a chart.<br><br>Affective: A child will identify new smells and then want to investigate source of each new odor.<br><br>Skills to be Learned<br>1. Measurement<br>2. Identification<br>3. Discussion<br>4. Awareness | I. Student-Centered in class activity<br>A. Smells<br>Each child bring one smell source to school<br>1. Have a guessing game to decide what each smell is.<br>2. Measure how close a person must be in order to smell each substance (each smell should be put in a small flat dish)<br>3. Compare the strength of the smells.<br>B. Go for a walk with children.<br>1. Look for different odors and find origins of odor and how close (metal tape measure) one was to smell it. See how smell effects area.<br>2. Make a chart to show each smell and the distance to smell.<br>3. Discuss what can be done about noxious smells.<br>(continued on reverse side) | II. Ou<br>Co<br>A. Lo<br>senta<br>of pl<br>B. Fa |

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Discipline Area Mathematics

Subject Measurement

Problem Orientation Air pollution Grade 1

SUGGESTED LEARNING EXPERIENCES

I. Student-Centered in class activity

A. Smells
Each child bring one smell source to school
1. Have a guessing game to decide what each smell is.
2. Measure how close a person must be in order to smell each substance (each smell should be put in a small flat dish)
3. Compare the strengtn of the smells.

B. Go for a walk with children.
1. Look for different odors and find origins of odor and how close (metal tape measure) one was to smell it. See how smell effects area.
2. Make a chart to show each smell and the distance to smell.
3. Discuss what can be done about noxious smells.
(continued on reverse side)

II. Outside Resource and Community Activities

A. Local large industry representative to speak about smells of plant and air pollution.
B. Farmer

| Resource and Reference Materials | Continued and Additional Suggested Learn |
| --- | --- |
| Publications:<br><br>Shuttlesworth, Clean Air, Doubleday, 1968<br>Clean Air for Your Community 1969 Environmental Health Service<br>Klein, What is an Inch, New York Harvey House Irvington-on-Hudson New York<br><br>Audio-Visual:<br>Filmstrip "Air Pollution"<br>D.C. Heath Co.<br>475 S. Dean Street<br>Englewood, New Jersey 07631<br>Films<br>"Air Around Us" McGraw Hill<br>330 West 42nd Street<br>New York, New York<br>"Air and What It does IBF<br>Encyclopedia Britannica Films<br>1150 Wilmette Avenue<br>Wilmette, Illinois<br><br>Community:<br><br>Sources of Air Pollution<br>Garage<br>Paper Mills<br><br>Buses<br>Farms | I. Cont.<br>C. Spray aerosal room deoderizing mist this change the air around us? |

Continued and Additional Suggested Learning Experiences

I. Cont.

C. Spray aerosal room deoderizing mist in air. How does this change the air around us?

CONCEPT 6. natural resources are not equally distributed over the earth or over time and greatly affect the geographic conditions and quality of life

Discipline Area Mathematic

Subject Fractions

Problem Orientation Halves

| BEHAVIORAL OBJECTIVES | SUGGESTED LEARNING EXP | |
|---|---|---|
| Cognitive: The learner will differentiate 1/2 from 1/4 by pointing to the piece designated.<br><br>Affective: A child will investigate to find reasons why things are not divided equally in life.<br><br>Skills to be Learned<br>1. Dividing circles and squares into 1/2 and 1/4's.<br>2. Recognizing and writing fractions.<br>3. Discussion.<br>4. Map reading | I. Student-Centered in class Activity<br>A. Discuss fractions<br>1. How to divide circles squares,<br>2. Each part must be equal.<br>3. How to write fractions<br>B. Give the student 2 maps of Wisconsin which show the areas that have lumbering forests.<br>1. Discuss the areas of concentrated lumber forests.<br>2. Cut 1 of the maps in half. Are the forests equally distributed? Which half has more?<br>3. Take the 2nd map and cut into fourths. Label the 4ths and compare the lumber forests in each section.<br>C. Repeat the above procedure using another mineral or natural resource.<br>D. You can run a little contest asking the students to identify various parts such as 1/4 with no forests etc. | II. Cut<br>Con<br>A. Ha<br>on t<br>Wisc<br>(Co |

ESEA Title III - 59-70-0135 - Project I-C-2

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Discipline Area Mathematics

Subject Fractions

Problem Orientation halves and quarters Grade 1

SUGGESTED LEARNING EXPERIENCES

I. Student-Centered in class Activity

A. Discuss fractions
1. How to divide circles squares,
2. Each part must be equal.
3. How to write fractions

B. Give the student 2 maps of Wisconsin which show the areas that have lumbering forests.
1. Discuss the areas of concentrated lumber forests.
2. Cut 1 of the maps in half. Are the forests equally distributed? Which half has more?
3. Take the 2nd map and cut into fourths. Label the 4ths and compare the lumber forests in each section.

C. Repeat the above procedure using another mineral or natural resource.

D. You can run a little contest asking the students to identify various parts such as 1/4 with no forests etc.

II. Outside Resource and Community Activities

A. Have a D.N.R. member speak on the lumber distribution in Wisconsin

(Continued on reverse side)

| Resource and Reference Materials | Continued and Additional Suggested Lear |
| --- | --- |
| Publications:<br>Things by Dunn, Phoebe and Tres<br><br>Audio-Visual:<br>Flannel board and cutouts of 1/2 and 1/4 to show the relation of 1/2 and 1/4<br>Land and Waters of Our Earth<br>Coronet<br><br>Community:<br>D.N.R. Representative | E.Make a floor map of Wisconsin and divi<br>Run contest having students step into va<br>map, such as step on 1/4 - Spread to 3/<br>F. Each child make pies of 1/2 and 1/4,<br>a spinner piece of tag board, paper fast<br>2 children can play together, see who ca<br>pies first. |

| | |
|---|---|
| | Continued and Additional Suggested Learning Experiences |
| | E. Make a floor map of Wisconsin and divide into fourths. Run contest having students step into various parts of map, such as step on 1/4 - Spread to 3/4 continue.<br>F. Each child make pies of 1/2 and 1/4, cut apart. Make a spinner piece of tag board, paper fasteners, and arrow 2 children can play together, see who can complete their pies first. |

ESEA Title III - 55-70-0135-2 Project 1-[illegible]-2

CONCEPT 7. Factors such as facilitating transportation, economic conditions, population growth, and increased leisure time have a great influence on changes in land use and centers of population density.

Discipline Area Mathem

Subject Calend

Problem Orientation Leisur

| BEHAVIORAL OBJECTIVES | SUGGESTED LEARNING EXPE | |
|---|---|---|
| Cognitive: The child will make a calendar drawing (a picture) of some leisure activity for each month.<br><br>Affective: The child will become aware of the times when it is possible to take a vacation and defend his choice of a time.<br><br>Skills to be Learned<br>Counting<br>Measuring<br>Calendar writing<br>Drawing<br>Discussion | I. Student-Centered in class activity<br>A. Discussion of individual months<br>1. Number of months in a year,<br>2. Number of days in each month.<br>3. Activities to be carried on each month.<br>B. The long weekend<br>1. Compare the number of days in regular weekend with those in long weekend.<br>2. Discuss activities to be carried on during long weekend.<br>C. Class will make a calendar page for each month of the year showing outdoor activities that can be carried on each month according to seasons.<br>D. Special Days of the month<br>1. Identify and discuss special days of each month. Count them.<br>(Continued on reverse side) | II. Ou<br>Co<br>A. P<br>on t<br>B. P<br>to d<br>of p<br>resp<br>C. I<br>peop<br>D. C<br>cuss<br>pers<br>and s |

s facilitating trans-
ic conditions, pop-
nd increased leisure
influence on changes
enters of population density.

Discipline Area Mathematics

Subject Calendar

Problem Orientation Leisure Time Grade 1

| LCTIVES | SUGGESTED LEARNING EXPERIENCES | |
|---|---|---|
| d<br>draw-<br>one<br>each<br><br><br>d will<br>times<br>to<br>defend<br>. | I. Student-Centered in class activity<br>A. Discussion of individual months<br>1. Number of months in a year,<br>2. Number of days in each month.<br>3. Activities to be carried on each month.<br>B. The long weekend<br>1. Compare the number of days in regular weekend with those in long weekend.<br>2. Discuss activities to be carried on during long weekend.<br>C. Class will make a calendar page for each month of the year showing outdoor activities that can be carried on each month according to seasons.<br>D. Special Days of the month<br>1. Identify and discuss special days of each month. Count them.<br>(Continued on reverse side) | II. Outside Resource and Community Activities<br>A. Policeman to discuss safety on trips during vacation.<br>B. Park attendant or Manager to discuss his work and numbers of persons using parks and responsibilities.<br>C. Ice Cream Man - number of people served.<br>D. Conservation worker to discuss responsibilities of campers and others using forests and streams. |

| REsource and Reference Materials | Continued and Additional Suggested Le |
| --- | --- |
| Publications:<br>Watts, Mable, Weeks and Weeks, New York Abelard Press, 1957.<br>Tudor, Tasha Around the Year New York Henry Z. Walck Inc. 1957<br><br>Audio-Visual:<br>Filmstri,<br>Picnic for Dick and His Friends SVE<br>4860 Fall in Northern Wisconsin 1956 BAVI (Film)<br>Pamphlet "Why Leaves Change Color" , U.S. Dept. Agriculture<br><br>Community:<br>Trip to see Hotel or Motel to find out number of guests at different months of the year. | I. D. (cont)<br><br>2. Plan activities that could be<br>special days of the month.<br>3. Draw pictures to illustrate di<br>the month and the seasonal activit |

| aterials | Continued and Additional Suggested Learning Experiences |
| --- | --- |
| Weeks, 1957. Year Inc. | I. D. (cont)<br>2. Plan activities that could be carried on for the special days of the month.<br>3. Draw pictures to illustrate different special days of the month and the seasonal activities possible. |
| Friends | |
| sconsin | |
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CONCEPT C8. Cultural, economic, social, and political factors determine status of man's values and attitudes toward his environment.

Discipline Area Ma

Subject Or

Problem Orientation

| BEHAVIORAL OBJECTIVES | SUGGESTED LEARNI |
|---|---|
| Cognitive: The child will list 10 objects according to the most liked by writing first, second, third etc. behind each.<br><br>Affective: The child will evaluate the different things he meets in his life.<br><br>Skills to be Learned<br>Listing<br>Evaluating | I. Student-Centered in class activity<br>A. Ordinal Numbers<br>1. Have 10 different objects on a table. Have children identify which is first, second, fifth etc.<br>B.<br>1. Give each child a list of objects. Each child write first behind the object he likes most. Write second behind the next most liked item. etc. List of objects such as:<br>1. deer<br>2. tree<br>3. bike<br>4. box of candy<br>5. wild flowers<br>6. skunk<br>7. dirty stream<br>8. burnt forest<br>9. Garbage dump<br>10. swamp<br>(Continued on reverse side) |

ESEA Title III - 59-70-0135-2 Project I-C-3

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Discipline Area Mathematics

Subject Ordinal Numbers

Problem Orientation Quality of Life Grade 1

SUGGESTED LEARNING EXPERIENCES

I. Student-Centered in class activity

A. Ordinal Numbers
1. Have 10 different objects on a table. Have children identify which is first, second, fifth etc.

B.
1. Give each child a list of objects. Each child write first behind the object he likes most. Write second behind the next most liked item. etc. List of objects such as:
1. deer
2. tree
3. bike
4. box of candy
5. wild flowers
6. skunk
7. dirty stream
8. burnt forest
9. Garbage dump
10. swamp

(Continued on reverse side)

II. Outside Resource and Community Activities

A. Bring different people from different walks of life to speak on what is important to them.

| Resource and Reference Materials | Continued and Additional Suggeste |
| --- | --- |
| Publications:<br>Bishop, Claire, The Five Chinese Brothers, EauClaire, E.M. hale and Co. 1938<br>Menesini, Mario, The Environmental School Project I-C-E RMC # 120 Me<br><br>Audio-Visual:<br>Movie<br>Our Land Needs Your Help (color) 13 min. BAVI<br>Nature is for People BAVI<br>Lakes BAVI<br><br>Community:<br>A. Blind or handicapped person speak on what is important to him<br>B. A person from a different country visiting in U.S. | I. B. (cont)<br>2. Take the 10 different obj one child place items accord the least liked.<br>3. Have another child do the is a change in the order fro the next.<br>4. Give each child the same them list items again accord cuss any change.<br>C. Send list of objects home w parent to list objects accordi Discuss why parents choice is choice. |

ontinued and Additional Suggested Learning Experiences

. B. (cont)

2. Take the 10 different objects on the table. Have one child place items according to the most liked to the least liked.

3. Have another child do the same. Discuss why there is a change in the order from the first child to the next.

4. Give each child the same list as in No. 1. Have them list items again according to most liked. Discuss any change.

C. Send list of objects home with child. Child ask parent to list objects according to most liked etc. Discuss why parents choice is different from the child's choice.

ESEA Title III - 69-70-0135-2 Project I-C-2

CONCEPT 9. Man has the ability to manage, manipulate, and change his environment.

Discipline Area

Subject

Problem Orientation

| BEHAVIORAL OBJECTIVES | SUGGESTED LEARN |
|---|---|
| Cognitive: The children will read a thermometer and keep a record of the temperature for 1 week.<br><br>Affective: The children will investigate the different ways man manipulates and manages temperature in his life.<br><br>Skills to be Learned<br>1. Discussion<br>2. Reading a thermometer<br>3. Writing temperature<br>4. Reporting<br>5. Record Keeping | I. Student-Centered in class activity<br>A. Introduce seasons and the temperature change in each.<br>1. What was the temperature yesterday?<br>2. What was the temperature last week?<br>3. Temperature last month?<br>4. During the winter? etc.<br>B. Bring thermometer in and practice reading thermometer. Keep records of temperature outside for one week. Compare coldest temperature and warmest. Children will do the reading of the thermometer.<br>C. Ask question<br>How does man control the change of temperature? clothing, fires, air-conditioners.<br>1. Have children bring in clothing samples of how they would dress in a certain season.<br>2. Children report to school on how the temperature is controlled in their home. |

ability to manage,

change his environ-

Discipline Area Mathematics

Subject Measurement

Problem Orientation Temperature Grade 1

| OBJECTIVES | SUGGESTED LEARNING EXPERIENCES | |
|---|---|---|
| ildren<br>ometer<br>of the<br>week.<br><br>nildren<br>the dif-<br>anipulates<br>rature<br><br>ned<br><br>ometer<br>ature | I. Student-Centered in class activity<br>A. Introduce seasons and the temperature change in each.<br>1. What was the temperature yesterday?<br>2. What was the temperature last week?<br>3. Temperature last month?<br>4. During the winter? etc.<br>B. Bring thermometer in and practice reading thermometer. Keep records of temperature outside for one week. Compare coldest temperature and warmest. Children will do the reading of the thermometer.<br>C. Ask question<br>How does man control the change of temperature?<br>clothing, fires, air-conditioners.<br>1. Have children bring in clothing samples of how they would dress in a certain season.<br>2. Children report to school on how the temperature is controlled in their home. | II. Outside Resource and Community Activities<br>A. Visit several places where clothing is influenced by temperature.<br>1. People who work outside.<br>2. In a furnace room. |

| Resource and Reference Materials | Continued and Additional Suggested Lea |
| --- | --- |
| Publications:<br><br>Air is All Around You<br>New York, Crowell 1962<br><br>Audio-Visual:<br>Film<br>Air and What it does<br>Encyclopedia Britannica Films, Inc.<br>1150 Wilmette Avenue<br>Wilmette, Illinois<br><br>Community:<br><br>1. Weatherman<br>2. Heating and Cooling Man<br>3. Businessman that deals with clothing. Could be a father, uncle etc. | |

| als | Continued and Additional Suggested Learning Experiences |
| --- | --- |

CONCEPT

10. Short-term econmic gains may produce long-term environmental losses.

Discipline-Area

Subject

Problem Orientation

| BEHAVIORAL OBJECTIVES | SUGGESTED LEARNI |
|---|---|
| Cognitive: The learner will count and graph the number of pleasure motor vehicles in the room.<br><br>Affective: The learner will question the need for so many pleasure motor vehicles.<br><br>Skills to be Learned<br>1. Counting<br>2. Discussion<br>3. Graphs<br>4. Compare | I. Student-Centered in class activity<br>A. Discuss pollution caused by motor vehicles.<br>B. You will survey motor vehicles.<br>1. From classroom members count the number of snowmobiles, mini bikes, ATV's motor boats and go-carts.<br>2. Make a picture graph of the number of vehicles owned by families of room members.<br>C. Pollution of a motor vehicle<br>1. Have an older brother or mechanic bring a motor driven vehicle to school.<br>2. Have him start the motor outside.<br>3. Use a filter paper in a wire ring placed behind the exhaust pipe to see the emmission.<br>(Continued on reverse side) |

onmic gains may

environmental

Discipline-Area Mathematics

Subject Counting

Problem Orientation Quality of Life Grade 1

| IVES | SUGGESTED LEARNING EXPERIENCES | |
|---|---|---|
| ir | I. Student-Centered in class activity<br>A. Discuss pollution caused by motor vehicles.<br>B. You will survey motor vehicles.<br>1. From classroom members count the number of snowmobiles, mini bikes, ATV's motor boats and go-carts.<br>2. Make a picture graph of the number of vehicles owned by families of room members.<br>C. Pollution of a motor vehicle<br>1. Have an older brother or mechanic bring a motor driven vehicle to school.<br>2. Have him start the motor outside.<br>3. Use a filter paper in a wire ring placed behind the exhaust pipe to see the emmission.<br>(Continued on reverse side) | II. Outside Resource and Community Activities<br>A. Bus driver to discuss if there has been an increase in the number riding his bus.<br>B. Class trip to a garage to see the effects gasoline motors have on floors, walks and air.<br>C. Show with a spoon over a lighted candle the carbon found in smoke. |

| Resource and Reference Materials | Continued and Additional Suggested |
| --- | --- |
| Publications:<br><br>Dirty Air Minnesota Environmental Sciences Foundation Inc. Project I-C-E RMC<br>Dangerous Air - Kalaver - Project I-C-E RMC<br><br>Audio-Visual:<br>Film<br>Air All Around Us McGraw-Hill<br>Air; What it Does Encyclopedia Britannica<br>City Bus Driver BAVI<br><br>Community:<br>Industrialist or Garage Mechanic | I. (Cont.)<br>D. Discuss the pollution caused b<br>1. What happens to the air?<br>2. How does this loss compare t<br>driving the vehicle?<br>E. Count the number of persons ri<br>1. Discuss the pollution amount<br>people on it.<br>2. Discuss what would happen if<br>to come in their own car.<br>F. Discuss how riding buses or tr |

## Continued and Additional Suggested Learning Experiences

I. (Cont.)

D. Discuss the pollution caused by the emmission.
   1. What happens to the air?
   2. How does this loss compare to the joy gained by driving the vehicle?

E. Count the number of persons riding the bus.
   1. Discuss the pollution amount for the bus and those people on it.
   2. Discuss what would happen if all 40 persons were to come in their own car.

F. Discuss how riding buses or trains limits pollution.

ESEA Title III - 59-70-0135-2 Project I-C-E

CONCEPT: 11. Individual acts, duplicated or compounded, produce significant environmental alterations over time.

Discipline Area: Ma

Subject: Counting

Problem Orientation

| BEHAVIORAL OBJECTIVES | SUGGESTED LEARNIN |
|---|---|
| Cognitive: The learner will measure the bottles and cans from his family and compare this garbage to the amount for the total class.<br><br>Affective: The children will volunteer to find ways to cut down the pile up of refuse and use of land for this refuse.<br><br>Skills to be Learned<br>1. Discussion<br>2. Counting<br>3. Comparing<br>4. Survey taking<br>5. Cause and effect thinking. | I. Student-Centered in class activity<br>A. Have the students select a day on which they will ask their mothers to save the cans and bottles she empties that day.<br>1. These are brought to school.<br>2. Count the number of bottles, count the number of cans.<br>B. How much do these cans weigh:<br>1. Measure 1 person's cans and bottles.<br>2. Measure the entire group's cans and bottles<br>3. Compare these.<br>C. How long is a line of the cans?<br>1. Line up and measure individual cans.<br>2. Line up the entire group's cans and bottles and measure.<br>3. Compare<br>D. Project this into city garbage collection. Problems? |

Discipline Area Mathematics

Subject Counting

Problem Orientation Solid Waste Disposal - Grade 1

SUGGESTED LEARNING EXPERIENCES

Student-Centered in class activity

A. Have the students select a day on which they will ask their mothers to save the cans and bottles she empties that day.
   1. These are brought to school.
   2. Count the number of bottles, count the number of cans.

B. How much do these cans weigh:
   1. Measure 1 person's cans and bottles.
   2. Measure the entire group's cans and bottles
   3. Compare these.

C. How long is a line of the cans?
   1. Line up and measure individual cans.
   2. Line up the entire group's cans and bottles and measure.
   3. Compare

D. Project this into city garbage collection. Problems?

II. Outside Resource and Community Activities

A. City worker to discuss his job with Sanitation department.
B. Law enforcement officer to discuss the laws against littering refuse disposal.

| Resource and Reference Materials | Continued and Additional Sugge |
| --- | --- |
| Publications:<br><br>Trash Is Taking Over Minnesota Environmental Sciences Foundation at I-C-E RMC<br><br>Audio-Visual:<br><br>Pictures or films of land fill areas and dump. Litter could also be noted.<br><br>Community:<br><br>Sanitary Engineer to discuss refuse picked up a few years as opposed to now. Stress quanicy and how disposal of refuse has changed. | |

ontinued and Additional Suggested Learning Experiences

ESEA Title III - 59-70-0135-2 Project I-C-E

CONCEPT 12. Private ownership must be regarded as a stewardship and should not encroach upon or violate the individual right of others.

Discipline Area Math

Subject Countin

Problem Orientation Wat

| BEHAVIORAL OBJECTIVES | SUGGESTED LEARNING E | II. |
|---|---|---|
| Cognitive: The learner will collect and summarize data on the use of high and low phosphate soaps.<br><br>Affective: The learner will urge parents to use low phosphate soaps.<br><br>Skills to be Learned<br>1. Data collection<br>2. Pictographs<br>3. Summarization<br>4. Observation | I. Student-Centered in class activity<br>A. Suggested introduction Use the story in Tragedy at the Laundromat.<br>B. Obtain a listing of the percentage of phosphates in laundry detergents<br>1. Take a sample of high, medium, and low phosphate and mix a small amount of each into equal amounts of clean water.<br>2. Observe results after shaking - allow to set for several days and re-shake - results.<br>C. Each child survey 2 homes to find the kind of soap used.<br>1. From the survey make a pictograph of kinds of soap used.<br>2. Summarize amounts and put this information into a fact sheet which will be redistributed, with a chart of phosphate high and low soaps to the homes surveyed. | |

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Discipline Area Mathematics

Subject Counting - Pictograph

Problem Orientation Water Quality Grade 1

SUGGESTED LEARNING EXPERIENCES

I. Student-Centered in class activity

A. Suggested introduction
Use the story in Tragedy at the Laundromat.

B. Obtain a listing of the percentage of phosphates in laundry detergents

1. Take a sample of high, medium, and low phosphate and mix a small amount of each into equal amounts of clean water.
2. Observe results after shaking - allow to set for several days and re-shake - results.

C. Each child survey 2 homes to find the kind of soap used.

1. From the survey make a pictograph of kinds of soap used.
2. Summarize amounts and put this information into a fact sheet which will be redistributed, with a chart of phosphate high and low soaps to the homes surveyed.

II. Outside Resource and Community Activities

A. Put lists of high and low phosphate soaps into laundromats.

B. Make a list of kinds of soaps on the shelves in a grocery store.

| Resource and Refernece Materials | Continued and Addit |
| --- | --- |
| Publications:<br><br>Tragedy at the Laundromat<br>at I-C-E RMC<br>Whole Earth Catalog<br>Menlo Park, California<br>Needed Clean Water<br>D.N.R. Box 450<br>Madison Wisconsin<br>53701<br><br>Audio-Visual:<br><br>Community:<br>D.N.R. on detergents | |

ontinued and Additional Suggested Learning Experiences

PROJECT I-C-E Episode Evaluation Form (Reproduce or

Please fill in:
Subject: _____

Grade: _____

Concept No. Used: _____

In commenting on each episode used
form. Feel free to adapt it and add
your critiques and comments - negati
hand column, please rate (poor, good
make specific comments or suggestion
vided to help us make this a more us

| Poor | Good | Exc. | |
|---|---|---|---|
| | | | I. Behavioral Objectives<br>A. Cognitive: |
| | | | B. Affective: |
| | | | II. Skills Developed |
| | | | III. Suggested Learning Experiences<br>A. In Class: |
| | | | B. Outside & Community Activities: |
| | | | IV. Suggested Resource & Reference Materials<br>(specific suggestions & comments) |

de Evaluation Form (Reproduce or duplicate as needed)

n commenting on each episode used in your class, please use this
m. Feel free to adapt it and add more pages. Let us know all
r critiques and comments - negative and positive. In the left-
d column, please rate (poor, good, excellent) each item. Also,
e specific comments or suggestions if possible in the space pro-
ed to help us make this a more usable guide. Thank you.

Objectives
e:

e:

loped

earning Experiences
:

Community Activities:

esource & Reference Materials
iggestions & comments)

Project I-C-E
Serving Schools in CESA 3-8-9
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Green Bay, WI 54301